

**IN THE CLAIMS:**

Claims 1-20 (Canceled)

21. (Currently Amended) A semiconductor device, comprising:

a ~~co-doped germanium~~ buried layer doped located over a doped substrate, said buried layer doped throughout with germanium and a p-type dopant;

a doped epitaxial layer located over ~~the co-doped germanium~~ said buried layer.

22. (Canceled)

23. (Currently Amended) The semiconductor device as recited in Claim 21 ~~22~~ wherein ~~the~~ said p-type dopant is boron.

24. (Currently Amended) The semiconductor device as recited in Claim 21 wherein a dopant concentration of ~~the co-doped germanium~~ said buried layer ranges from about  $1\text{E}15$  atoms/cm<sup>3</sup> to about  $1\text{E}20$  atoms/cm<sup>3</sup>, a dopant concentration of the doped substrate ranges from about  $1\text{E}14$  atoms/cm<sup>3</sup> to about  $1\text{E}15$  atoms/cm<sup>3</sup>, and a dopant concentration of the doped epitaxial layer ranges from about  $1\text{E}14$  atoms/cm<sup>3</sup> to about  $1\text{E}15$  atoms/cm<sup>3</sup>.

25. (Currently Amended) The semiconductor device as recited in Claim 21 wherein ~~the co-doped germanium~~ said buried layer has a germanium concentration ranging from about

2E20 atoms/cm<sup>3</sup> to about 7E20 atoms/cm<sup>3</sup>.

26. (Currently Amended) The semiconductor device as recited in Claim 21 wherein ~~the co-doped germanium~~ said buried layer has a thickness ranging from about 1  $\mu$ m to about 10  $\mu$ m.

27. (Currently Amended) The semiconductor device as recited in Claim 21 wherein ~~the~~ said doped substrate, ~~co-doped germanium~~ said buried layer, and ~~the doped~~ said epitaxial layer collectively have a thickness ranging from about 2  $\mu$ m to about 20  $\mu$ m.

Claims 28-36 (Canceled)

37. (Currently Amended) An integrated circuit, comprising:  
a ~~co-doped germanium~~ buried layer located over a doped substrate, said buried layer doped throughout with germanium and a p-type dopant;  
a doped epitaxial layer located over ~~the co-doped germanium~~ said buried layer;  
transistors located over ~~the~~ said doped epitaxial layer; and  
interconnects located within interlevel dielectric layers located over ~~the~~ said transistors,  
which connect ~~the~~ said transistors to form an operational integrated circuit.

38. (Currently Amended) The integrated circuit as recited in Claim 37 wherein ~~the co-doped germanium buried layer further includes~~ said p-type dopant is boron.

39. (Currently Amended) The integrated circuit as recited in Claim 37 wherein ~~the~~  
~~co-doped germanium~~ said buried layer has a germanium concentration ranging from about  $2 \times 10^{20}$   
atoms/cm<sup>3</sup> to about  $7 \times 10^{20}$  atoms/cm<sup>3</sup>.

40. (Original) The integrated circuit as recited in Claim 37 further including  
additional active and passive devices.